

REMARKS

Reconsideration of this application as amended is respectfully requested. Claims 1, 18 and 24 have been amended; claims 16, 17, 23 and 25-30 have been previously canceled. Therefore, claims 1-15, 18-22 and 24 are in this application and are presented for the Examiner's consideration in view of the following comments.

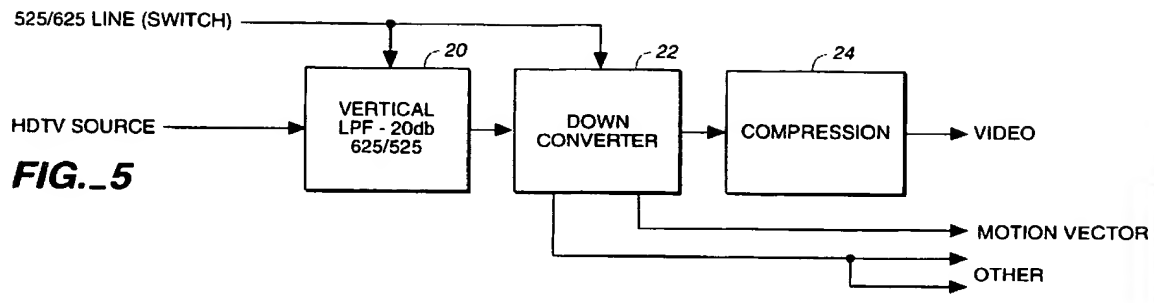
At the outset, Applicants' representative notes that in the response filed March 2, 2004, there were typographical errors in the "Listing and Amendments" for "Original" claims 1, 2, 3, 8, 13, 14 and 18. These typographical errors have been corrected herein to correctly represent the "Original" status of these claims. For example, in the response filed March 2, 2004, claim 1 contained the words "convened" and "reconvened" instead of the words "converted" and "reconverted", which are present in claim 1 as originally filed and correctly shown on page 2 of this paper.

Otherwise, Applicants have amended the claims merely to improve their form without regard to the rejections discussed herein. In particular, claim 1 has been amended to correct two spelling mistakes; claim 18 has been amended to replace the word "said" with the indefinite article "a"; and claim 24 has been amended merely to clarify the phrase "image signal parameters."

Rejection of Claim 24 under 35 U.S.C. § 102(b)

Claim 24 has been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,754,248 issued May 19, 1998 to Faroudja (*Faroudja*). Applicants respectfully maintain their disagreement with the Examiner.

Faroudja describes a "universal system" in which all video sources are transmitted as progressively-scanned video. (*Faroudja*, col. 2, lns. 24-26.) In this regard, FIG. 5 of *Faroudja*, which shows the encoding of an HDTV/ATV source signal into a progressively-scanned video signal, is reproduced below.



As can be observed from FIG. 5 of *Faroudja*, the HDTV source signal is applied to low-pass filter 20 for filtering. As further stated in *Faroudja*:

[t]he filtered HDTV signal is then down converted to a 525- or 625-line 24 Hz or 25 Hz progressively scanned signal by down converter 22.

Faroudja, col. 8, lns. 10-12; emphasis added.

As can be further observed from FIG. 5, both low-pass filter 20 and down converter 22 operate as a function of the 525/625 Line (switch) command. The 525/625 Line (switch) command corresponds to the number of lines in the resulting video signal. (*Faroudja*, col. 8, lns. 4-6). Indeed, as stated in *Faroudja*:

...high-definition television (HDTV) (sometimes referred to as advanced television or "ATV"). The ATV source may be, for example, according to any of the six United States "Grand Alliance Video Formats" (e.g., 1920 horizontal pixelsx1080 vertical pixels at 24 pictures/sec progressive, 30 pictures/sec progressive, 60 pictures/sec interlaced; and 1280 horizontal pixelsx720 vertical pixels at 24 pictures/sec progressive, 30 pictures/sec progressive and 60 pictures/sec progressive) or other format such as one of the European HDTV/ATV format proposals in which the frame rate is 25, 50 or 100 Hz.

Faroudja, col. 5, lns. 36-46; emphasis added.

Thus, Applicants submit that one skilled in the art would understand the 525/625 Line (switch) command shown in FIG. 5 of *Faroudja* to correspond to the number of lines in the resultant video signal and not to the number of lines in the HDTV source signal. This is further supported by the description in *Faroudja*, which states:

[i]n order to avoid Nyquist undersampling artifacts in the resulting 625 or 525 line video, the HDTV signal is first applied to a low-pass filter 20, which may have, for example, the same characteristics as filter 6 described in connection with FIG. 2 (the filter characteristics may be less severe because the vertical line rate is less than in the case of the film source).

Faroudja, col. 8. lns. 4-8; emphasis added.

With regard to filter 6 of FIG. 2, *Faroudja* states:

[i]n order to avoid Nyquist undersampling artifacts in the resulting 625- or 525-line video, the film chain output is first applied to a low-pass filter 6, which may be, for example, a 27-pole vertical low-pass filter having a response down 20 dB at 525- or 625-line vertical resolution.

Faroudja, col. 6. lns. 22-27.

Thus, the response of LPF 20 of FIG. 5 varies as a function of the desired number of lines in the resultant video signal.

In contrast, *Faroudja* does not anticipate Applicants' claim 24. In particular, Applicants' claim 24 requires that

adaptive filtering is a function of image signal parameters of the detected video signal prior to filtering.

As such, even if it could be argued that LPF 20 of *Faroudja* is an adaptive filter, LPF 20 does not adaptively filter as a function of image signal parameters prior to filtering. As noted above, LPF 20 of *Faroudja* is responsive to the desired number of lines in the resultant video signal — not the number of lines in the video source signal.

As a result of the above, Applicants respectfully submit that Claim 24 is not anticipated by *Faroudja*.

Rejection of Claims 1-10, 13 and 14 under 35 U.S.C. § 103(a)

Claims 1-10, 13 and 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Faroudja* in view of U.S. Patent No. 5,049,993 issued September 17, 1991 to LeGall et al. (*LeGall*). Applicants respectfully maintain their disagreement with the Examiner for any one of a number of reasons.

As noted above, *Faroudja* describes a "universal system" in which all video sources are transmitted as progressively-scanned video. (*Faroudja*, col. 2, lns. 24-26.)

Similarly, *LeGall* describes a method and apparatus for converting a video sequence in an interlaced format to a progressive format for transmission. (*LeGall*, col. 1, lns. 7-10.)

Thus, both *Faroudja* and *LeGall* convert video signals to a progressive format for transmission.

In view of the above, it is not possible for the combination of *Faroudja* and *LeGall* to meet the requirements of Applicants' independent claims 1 and 13. In particular, both Applicants' claims 1 and 13 require reconverting a video signal back to its original format. Nowhere does either *Faroudja* or *LeGall*, singly or in combination, describe or suggest reconverting the video signal.

Applicants note that the Examiner states in the FINAL Official Action of December 5, 2003, that:

it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Faroudja, which uses a universal system which transmits (encodes) and receives (decodes) signals of various standards would have been motivated by Legall to convert an interlaced signal to a progressive scan signal to reduce the bandwidth of the transmitted signal and **then to reconvert the signal in original format for encoding, since the conversion performed was to reduce the bandwidth of the transmitted signal and not the displayed signal.**

FINAL Official Action, p. 4, emphasis added.

Respectfully, the Examiner's comments have no support in either *Faroudja* or *LeGall*. With respect to the above-underlined portion of the Examiner's remarks, Applicants note that *Faroudja* already describes that all video sources are converted to a progressive format for transmission. (*Faroudja*, col. 2, lns. 24-26.) Therefore, *LeGall* adds nothing. With respect to the above-boldened portion of the Examiner's remarks — nowhere does either *Faroudja* or *LeGall* describe reconverting a signal before transmission. As such, there is simply no support for this assertion by the Examiner.

Likewise, Applicants' note that the Examiner states in the Advisory Action of March 16, 2004, that:

[t]he Examiner's position was although claims 1 and 13 included a sequence of steps in a method claim, that performing conventional conversion/reconversion of a video signal *is not obvious over prior art*. Although the claim calls for a sequence of steps, the combination of steps each of which is conventional in the art, it not patentable [sic] distinct in view of prior art.

Advisory Action, p. 2, Emphasis added.

With respect to the above-italicized portion of the Examiner's remarks, Applicants' assume the Examiner did not mean what he stated.

With respect to the above-underlined portion of the Examiner's remarks, Applicants' respectfully remind the Examiner that under 35 U.S.C. 103(a), the claimed subject matter as a whole must be considered. Any argument by the Examiner that the separate features of Applicants' combination claim are known in different references and that "therefore" the whole subject matter is obvious is an improper hindsight, or ex post facto, analysis.

Second, there is simply no reason to modify *Faroudja* as asserted by the Examiner. In particular, both *Faroudja* and *LeGall* teach away from reconverting a video signal back to its original format before transmission. As noted above, both *Faroudja* and *LeGall* describe conversion of a video signal to a progressive format for transmission. Nowhere does either *Faroudja* or *LeGall* describe reconverting a video signal back to its original format before transmission.

Third, the Examiner's interpretation of *Faroudja* is wrong — other elements of Applicants' independent claims 1 and 13 are not described in *Faroudja*. In particular, the Examiner broadly asserts that *Faroudja* describes "adaptively filtering", "converting to a lower resolution", "encoding" and "conveying." Yet Applicants' do not claim simply "adaptively filtering", "converting to a lower resolution", "encoding" and "conveying". For example, Applicants' claim 1 requires in part:

- (a) converting said first video signal to a different format, to produce a converted signal;
- (b) filtering said converted signal to produce a filtered signal;

- (c) reconverting said filtered signal to the original format of said first signal, to produce a reconverted signal;
- (d) converting said reconverted signal to a lower resolution to produce a lower resolution, signal;
- (e) encoding said lower resolution signal to produce an encoded signal;
- and
- (f) conveying said encoded signal to an output channel.

Applicants' submit that if *Faroudja* does not describe step (c) — it is not possible for *Faroudja* to describes steps (d), (e) and (f) since each of these steps further process the reconverted signal. Applicants request the Examiner particularly point to that part of *Faroudja* that describes, e.g., converting the reconverted signal (step (d)) of Applicants' claim 1. Similar comments apply to Applicants' claim 13. It should also be noted that *LeGall* does not remedy this deficiency in *Faroudja* for similar reasons.

As a result of the above, Applicants respectfully submit that Applicants' independent claims 1 and 13 are patentable over *Faroudja* in view of *LeGall*. Consequently, dependent claims 2-10 and 14 are also in condition for allowance.

Rejection of Claims 11, 12 and 15 under 35 U.S.C. § 103(a)

Claims 11, 12 and 15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Faroudja* in view of *LeGall* and further in view of U.S. Patent No. 5,128,776 issued July 7, 1992 to Scorse et al. (*Scorse*). Applicants respectfully traverse for the reasons described above with respect to independent claims 1 and 13.

Rejection of Claim 18 under 35 U.S.C. § 103(a)

Claim 18 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Faroudja* in view of *Scorse*. Applicants respectfully disagree.

Applicants' claim 18 includes steps of filtering a detected signal to produce a filtered signal and converting the filtered signal to a lower resolution of 1280 x 1080 samples per frame. As stated in Applicants' specification:

[t]he hybrid format [1280 pixels per line] is advantageous because terrestrial and satellite program providers have been unwilling to transmit HD programs. A satellite transponder transmits a data stream of approximately 24 Mbits per second (Mbps). A terrestrial HDTV broadcasts can transmit up to 19 Mbps including the HD program at 18

Mbps and other information (such as audio, program guide, conditional access, etc.). Present satellite transponders can each carry at most one HDTV program, which satellite program providers contend is not sufficiently profitable. Simply reducing the horizontal frame resolution from 1920 to 1280 is not sufficient to allow the simultaneous transmission of two HD programs on a single satellite transponder. The filtering provided by processor 22 advantageously permits such dual HD transmission on a single channel.

Applicants' specification, p. 9, ln. 35 to p. 10, ln. 5; emphasis added.

Thus, Applicants' have advantageously realized a way to permit dual HD transmission on a single channel.

In contrast, *Faroudja* describes a "universal system" in which all video sources are transmitted as progressively-scanned video. (*Faroudja*, col. 2, lns. 24-26.) In particular, the progressively-scanned video is transmitted either at 525 lines or 625 lines. (For example, see *Faroudja*, col. 8, lns. 10-12; FIGs. 2-5.) Nowhere does *Faroudja* describe or suggest use of Applicants' claimed 1280 x 1080 resolution.

Likewise, *Scorse* does not describe or suggest Applicants' claimed filtering and conversion to a 1280 x 1080 resolution. *Scorse* only describes selection of "a resolution" and "a compression level" for an image before transmission. (*Scorse*, FIG. 2.)

In view of the above, the combination of *Scorse* and *Faroudja* does not yield Applicants' claimed invention.

Indeed, even if it could be argued that *Scorse* inherently includes a 1280 x 1080 resolution since the operator in *Scorse* could hypothetically select it — this still does not render Applicants' claimed invention unpatentable. In particular — absent Applicants' recognition of the solution — there is no reason to modify *Faroudja* as asserted by the Examiner. *Faroudja* already downconverts a video signal to either 525 lines or 625 lines. As such, *Faroudja* teaches away from use of Applicants' claimed 1280 x 1080 resolution even if an operator in *Scorse* could hypothetically select it. However, the fact is that *Scorse* does not describe, or suggest, use of a 1280 x 1080 resolution, or that there is any advantage to doing so — therefore, there is no basis for the Examiner to suggest that one skilled in the art would modify *Faroudja* to use

Applicants' claimed resolution simply because one can select "a resolution" for transmission as indicated in FIG. 2 of *Scorse*.

As a result, Applicants respectfully submit that claim 18 is patentable over *Faroudja* in view of *Scorse*.

Rejection of Claims 19-22 under 35 U.S.C. § 103(a)

Claims 19-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,444,491 issued August 22, 1995 to Lim (*Lim*) in view of *Scorse*. Applicants respectfully disagree.

As noted, Applicants' claimed format reflects a recognition by Applicants that this format advantageously results in a "hybrid" image resolution that high definition television (HDTV) receivers can easily decode and, with a minor software change, display. (Applicants' specification, p. 4, lns. 13-16; p. 9, ln. 13 to p. 10, ln. 5.)

Turning to *Lim*, this reference describes a television system with multiple transmission formats. These formats are illustrated in tables 1 and 2. (*Lim*, col. 4, ln. 41 to col. 5, ln. 7.) All of the formats are representative of a 16:9 aspect ratio. (*Lim*, col. 5, lns. 9-11.) *Lim* states that other aspect ratios can be used. (*Lim*, col. 5, ln. 11.)

As noted above, *Scorse* only describes selection of "a resolution" and "a compression level" for an image before transmission. (*Scorse*, FIG. 2.)

Like Applicants' claim 18, independent claim 19 is patentable over *Lim* in view of *Scorse*. First, there is no reason to modify *Lim* with *Scorse* as suggested by the Examiner. *Lim* already describes the use of different resolutions to provide varying transmission rates that fit in a broadcast channel. (*Lim*, col. 5, lns. 18-24.) *Scorse* adds nothing.

Second, even if one were to modify *Lim* with *Scorse* — this still does not yield Applicants' claimed invention. Neither *Lim*, nor *Scorse*, describe, or suggest, Applicants' claimed hybrid format of 1280 x 1080. Indeed, it is of note that *Lim* describes an HDTV system — yet *Lim* does not describe, or suggest, Applicants' claimed hybrid format. Further, as noted above, the fact is that *Scorse* does not

describe, or suggest, use of a 1280 x 1080 resolution, or that there is any advantage to doing so — therefore, there is no basis for the Examiner to suggest that one skilled in the art would modify *Lim* to use Applicants' claimed resolution simply because one can select "a resolution" for transmission as indicated in FIG. 2 of *Scorse*.

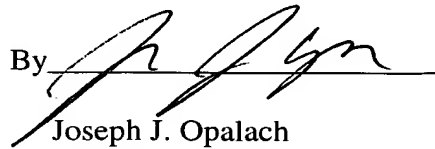
Nor does the fact that *Lim* states that other aspect ratios may be used suggest use of Applicants' claimed 1280 x 1080 hybrid format. Applicants submit that nothing in *Lim* (or even *Scorse*) suggests the hybrid format claimed by Applicants. In fact, Applicants' claimed format of 1280 x 1080 results in an aspect ratio of 32:27 — an aspect ratio not described or suggested in either *Lim* or *Scorse*.

In view of the above, Applicants respectfully submit that claim 19 and, therefore, dependent claims 20-22, are patentable over *Lim* in view of *Scorse*.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that the Examiner telephone Applicants' attorney in order to overcome any additional objections that the Examiner might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 07-0832 therefor.

Respectfully submitted
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